

15. (FOUR TIMES AMENDED) A recording medium readable by a computer and having recorded therein a program used for realizing said information processing apparatus according to claim 11, said information processing apparatus comprising:

D² memory means for storing a coordinate of at least a character or an image in said first intended area which provides a trigger of opening said second intended area displayed on said display screen before opening said second intended area; and

restoration means for restoring and displaying on said display screen a display state of said second intended area immediately before being opened on the basis of the coordinate stored in said memory means when erasing said second intended area.

16. (THREE TIMES AMENDED) An information processing apparatus according to claim 2, further comprising:

memory means for storing a coordinate of at least a character or an image in said first intended area which provides a trigger of opening said second intended area and are displayed on said display screen before opening said second intended area; and

D³ restoration means for restoring and displaying on said display screen a display state of said second intended area immediately before being opened on the basis of the coordinate stored in said memory means when erasing said second intended area.

17. (THREE TIMES AMENDED) An information processing apparatus according to claim 3, further comprising:

memory means for storing a coordinate of at least a character or an image in said first intended area which provides a trigger of opening said second intended area and are displayed on said display screen before opening said second intended area; and

restoration means for restoring and displaying on said display screen a display state of said second intended area immediately before being opened on the basis of the coordinate stored in said memory means when erasing said second intended area.



18. (THREE TIMES AMENDED) An information processing apparatus according to claim 4, further comprising:

memory means for storing a coordinate of at least a character or an image in said first intended area which provides a trigger of opening said second intended area and are displayed on said display screen before opening said second intended area; and

restoration means for restoring and displaying on said display screen a display state of said second intended area immediately before being opened on the basis of the coordinate stored in said memory means when erasing said second intended area.

19. (THREE TIMES AMENDED) An information processing apparatus according to claim 5, further comprising:

memory means for storing a coordinate of at least a character or an image in said first intended area which provides a trigger of opening said second intended area and are displayed on said display screen before opening said second intended area; and

restoration means for restoring and displaying on said display screen a display state of said second intended area immediately before being opened on the basis of the coordinate stored in said memory means when erasing said second intended area.

20. (THREE TIMES AMENDED) An information processing apparatus according to claim 6, further comprising:

memory means for storing a coordinate of at least a character or an image in said first intended area which provides a trigger of opening said second intended area and are displayed on said display screen before opening said second intended area; and

restoration means for restoring and displaying on said display screen a display state of said second intended area immediately before being opened on the basis of the coordinate stored in said memory means when erasing said second intended area.

21. (THREE TIMES AMENDED) An information processing apparatus according to claim 7, further comprising:

memory means for storing a coordinate of at least a character or an image in said first intended area which provides a trigger of opening said second intended area and are displayed on said display screen before opening said second intended area; and

restoration means for restoring and displaying on said display screen a display state of said second intended area immediately before being opened on the basis of the coordinate stored in said memory means when erasing said second intended area.

22. (THREE TIMES AMENDED) An information processing apparatus according to claim 8, further comprising:

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memory means for storing a coordinate of at least a character or an image in said first intended area which provides a trigger of opening said second intended area and are displayed on said display screen before opening said second intended area; and

restoration means for restoring and displaying on said display screen a display state of said second intended area immediately before being opened on the basis of the coordinate stored in said memory means when erasing said second intended area.

23. (THREE TIMES AMENDED) An information processing apparatus according to claim 9, further comprising:

memory means for storing a coordinate of at least a character or an image in said first intended area which provides a trigger of opening said second intended area and are displayed on said display screen before opening said second intended area; and

restoration means for restoring and displaying on said display screen a display state of said second intended area immediately before being opened on the basis of the coordinate stored in said memory means when erasing said second intended area.

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24. (THREE TIMES AMENDED) A recording medium readable by a computer and having recorded therein a program used for realizing said information processing apparatus according to claim 12, said information processing apparatus comprising:

memory means for storing a coordinate of at least a character or an image in said first intended area which provides a trigger of opening said second intended area displayed on said display screen before opening said second intended area; and

restoration means for restoring and displaying on said display screen a display state of said second intended area immediately before being opened on the basis of the coordinate stored in said memory means when erasing said second intended area.

25. (THREE TIMES AMENDED) A recording medium readable by a computer and having recorded therein a program used for realizing said information processing apparatus according to claim 13, said information processing apparatus comprising:

memory means for storing a coordinate of at least a character or an image in said first intended area which provides a trigger of opening said second intended area displayed on said display screen before opening said second intended area; and

restoration means for restoring and displaying on said display screen a display state of said second intended area immediately before being opened on the basis of the coordinate stored in said memory means when erasing said second intended area.

26. (THREE TIMES AMENDED) A recording medium readable by a computer and having recorded therein a program used for realizing said information processing apparatus according to claim 14, said information processing apparatus comprising:

memory means for storing a coordinate of at least a character or an image in said first intended area which provides a trigger of opening said second intended area displayed on said display screen before opening said second intended area; and

restoration means for restoring and displaying on said display screen a display state of

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said second intended area immediately before being opened on the basis of the coordinate stored in said memory means when erasing said second intended area.

27. (NEW) A method, comprising:

transforming a size and a scale of an original view with an original position, responsive to a magnification ratio, into a rescaled and resized second view, where the second view may extend beyond a viewable border of a display;

selecting a region within the second view, where the region may extend beyond the viewable border of the display;

capturing an original character size of a character associated with the region;

detecting an opening of a window containing the region, where the window may extend beyond the viewable border of the display;

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adjusting the magnification ratio responsive to a user preference; and

rescaling, resizing, and displaying the window responsive to a user preference, the character size, the magnification ratio, and a display size.

28. (NEW) A method as recited in claim 27, further comprising allowing the user to again initiate the selecting, capturing, detecting, adjusting, and rescaling.

29. (NEW) A method as recited in claim 27, wherein the window is resized, rescaled, displayed, and repositioned where the window horizontally and vertically exactly occupies the display.

30. (NEW) A method as recited in Claim 27, wherein the window is resized, rescaled, and displayed such that the size of a character within the resized, rescaled, and displayed window equals the original character size.

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31. (NEW) A method as recited in claim 27, wherein the magnification ratio is set to a ratio of the original character size to a user specified character size, and the window is resized, rescaled, and displayed according to the magnification ratio and the size of a character in the resized, rescaled, and displayed window equally the user specified character size.

32. (NEW) A method as recited in claim 27, further comprising inhibiting scrolling of the second view, when the second view extends beyond the viewable border of the display, with only contents of the original view being scrolled into view.

33. (NEW) A method as recited in claim 27, further comprising restoring the original view to the original position after leaving the resized and rescaled second view.

34. (NEW) A method as recited in claim 28, further comprising restoring the original view to the original position when leaving the resized and rescaled second view, such second view having resulted from an iteration caused by the user again initiating the selecting, capturing, detecting, adjusting, and rescaling.

35. (NEW) An apparatus as recited in claim 1, further comprising allowing the user to again initiate the detecting, determining, enlarging, and displaying.

36. (NEW) An apparatus as recited in claim 1, wherein the opening originates externally.

REMARKS

In accordance with the foregoing, claims 1-26 have been amended. Claims 27-36 have been added. Claims 1-36 are pending and under consideration.

Present Invention

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The present invention enlarges an original view and then enlarges subregions of the enlarged view according to the size of the display, the size of a character in the enlarged view, a user selected character size, or the magnification ratio used to enlarge the original view. The enlargement of the subregion is placed in a new window which may be smaller than, larger than, or equal to the size of the display. The request which opens the detected new window need not originate within the invention and the detecting step can detect an externally generated request for a new to-be-enlarged window. Scroll inhibiting prevents data from being displayed outside the subregion, and the original view can be restored to its original location. The entire process described above can be recursively applied to the new view.

The present invention need not be embodied as an autonomous data viewing application, but rather can be interposed between the user and other applications (e.g. an editor), thereby enabling enlarged viewing of many applications.

Note that for the purpose of discussion, and in order to track the Examiner's comments, these remarks use "enlarge" to mean both increasing and decreasing.

Warnock and Niles

Warnock discusses navigating a sequence of regions (articles) within a document and zooming a selected article. Warnock zooms a selected region in a window and displays the zoomed region in the same window. Warnock detects an internal request to open a new view (window). Warnock discusses adjusting the magnification rate downward if the width of the zoomed subregion exceeds the width of the window. Warnock inhibits scrolling because the enlarged view displays only the data contained in the selected subregion. Warnock also specifies restoring the original view after closing the zoomed view.

Niles discusses a method for simultaneously viewing varying multiple pages of a document. Each page is displayed in its own window and the size and scale of a page is incrementally proportional to its distance in page numbers from the focus page. A subregion of the focus page may be selected, magnified, and displayed in a pop-up window. The pop-up window is limited to only scroll data contained in the selected subregion.

Niles combined with Warnock, as cited by the Examiner, discusses a device that enlarges a subregion with magnification ratio reduction, scroll inhibition, and original view

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